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ABSTRACT

This paper reports on a study that investigated the reliability and validity of a school-environment measuring instrument: the School Level Environment Questionnaire (SLEQ). Results were compared to teachers' and principals' perceptions of actual and ideal school environments. The questionnaire was sent to 60 schools throughout Australia where it was to be completed by the principal and a random sample of 20 teachers in each school. Responses on 900 questionnaires were used. The study also employed interviews to expand the qualitative aspect of the research. Results indicate that the SLEQ is a reliable and valid instrument to measure perceptions of school environment. Analysis of responses to the SLEQ revealed that each scale had acceptable internal consistency. The teachers' perceptions of their actual school environments were similar to those of other recent studies of school environment using the SLEQ. A comparison of teachers' and principals' actual perceptions showed that there were significant differences in the way that both groups viewed the school environment. Generally, principals scored higher on seven of the eight scales and lower on their perception of work pressure. Teachers and principals, however, had a much more congruent view of an ideal school environment, registering differences in only two of the eight scales. (Contains 24 references.) (RJM)

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ED 430 289

A SCHOOL LEVEL ENVIRONMENT STUDY IN AUSTRALIA

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Paper presented at the 1999 Annual Meeting of the American Educational Research Association at Montreal, April 19-23, 1999.

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Perceptions of school environments have been the subject of much interest and research in recent years. It has been shown, for example, that there is a significant association between teachers' perceptions of principals' interpersonal behaviour and their perceptions of school environment (Cresswell & Fisher, 1996).

This paper reports on a study which investigated the reliability and validity of a school environment measuring instrument (the School Level Environment Questionnaire) and compared teachers' and principals' perceptions of actual and ideal school environments.

The questionnaire was sent to 56 schools throughout Australia where it was completed by the principal and a random sample of 20 teachers in each school. In addition to a rigorous statistical analysis of the data, the study also employed interviews to expand the qualitative aspect in an attempt to find out more about the schools involved and to draw a broader picture. This is also in keeping with current approaches to learning environment research (Fraser & Tobin, 1991, p. 290).

INTRODUCTION

For the past thirty years there has been a great deal of research in the area of learning environments. Anderson and Walberg (1974, p. 82) wrote that a strong case for environmental research had been made by Bloom (1964), who in reviewing work on growth rates and environmental effects, "pointed to the development of measures of environment as crucial for accurate prediction and effective manipulation of learning."

Lewin (1936) wrote that a person's behaviour (B) is a function of the relationship between the person (P) and the environment (E). This was summarised in his dictum, $B = f(P,E)$. Based on this is the work of Murray (1938), who developed the "Needs-Press" model as a theory of personality. Murray wrote that individuals have specific needs and that the strength of these needs characterises personality. Needs is an internal factor in determining behaviour. Press, on the other hand, represents the environment (the external factor) that is affecting the type of behaviour that an individual displays. Murray also distinguished between two types of press. He wrote that alpha press is the press that actually exists and can be measured, whereas beta press is a person's own interpretation or perception of surroundings.

Walberg (1979, p. 1) argued that teachers are environmentalists because they try to bring about a climate that will maximise a student's learning knowing that they have no control over the student's genetic background.

Three approaches to studying human environments were described by Moos (1973). The first approach is to describe the dimensions of the organisational structure. With this approach the quality of a school's environment is measured in terms of size, staffing ratios, salaries and qualifications of the staff. It is believed that these factors will influence the behaviour of the individuals in that environment. Another way to conceptualise a human environment is by describing the personal characteristics of the milieu inhabitants assuming that the character of the environment depends on the nature of its members. The third way to describe a human environment is by examining the psychosocial and social dimensions of the environment as perceived by either insiders or outsiders, in a framework of person-milieu interaction. This is the approach that has been used to describe the environment in this study.

Moos wrote (1979a, p. 3) that "the social ecological setting in which students function can affect their attitudes and moods, their behaviour and performance and their self-concept and

general sense of well-being." He also noted that in investigating human social environments (1979b, p. 82) three domains or dimensions existed. *Relationship dimensions* assess the extent to which people are involved in the environment, the extent to which they help and support one another and the amount of free and open expression among them. *Personal Development dimensions* assess the basic directions along which personal development and self-enhancement tend to move. *System Maintenance and System Change dimensions* measure how orderly the system is, if there is a clarity of expectation. It measures, also, how the system keeps control or responds to change. Moos believed that any adequate assessment of a human environment should cover each of these dimensions.

Moos developed the *Work Environment Scale* (WES) which has ten different scales associated with the three dimensions. The Relationship dimension was made up of scales of Involvement, Peer Cohesion, and Staff Support; the Personal Development dimension was composed of scales of Autonomy and Task Orientation; the System Maintenance and System Change dimension had scales in Work Pressure, Clarity, Control, Innovation, and Physical Comfort. Moos reported validation for the WES based on a study where it was administered to 600 employees in a number of different work groups in the USA. The WES has been used in a large number of work situations, including educational settings (Fraser, Docker, & Fisher, 1987, p. 69).

Moos also believed (1979a, p. 20) that students' perceptions could provide valuable insights into educational settings. Other researchers in the area of classroom environment agree with this perceptual approach (Fraser, 1986, p. 1). Advantages of using student perceptions were that judgements were based on long term observation, not just one encounter, and that student perception of the environment can actually be a determinant of behaviour.

METHOD

The School Level Environment Questionnaire (SLEQ)

The instrument selected to measure the environment was the *School Level Environment Questionnaire* (SLEQ). Fisher and Fraser (1990, p. 2) make the distinction between classroom environment and school environment. Classroom environment is more likely to be described in terms of relationships between teachers and their students. A school's environment, on the other hand, is more likely to be described by the teacher's relationship with the principal, senior staff and other teachers.

Development of the School Level Environment Questionnaire (SLEQ)

There is a large number of instruments designed to describe educational environments, including the the widely used *Organisational Climate Description Questionnaire* (OCDQ; Halpin & Croft, 1963); and the Work Environment Scale (WES; Moos, 1981; Fisher & Fraser, 1983). The WES has been used in research into differences between the school environments of high schools and primary schools (Docker, Fisher, & Fraser, 1989) and in teachers' practical attempts to improve their school environments (Fraser, Docker, & Fisher, 1988).

The School Level Environment Questionnaire (SLEQ), which measures teachers' perceptions of psychosocial dimensions of the environment of a school, evolved from Moos' Work Environment Scale (1981). A careful review of existing instruments was undertaken and the SLEQ was written to ensure that it provided coverage of Moos' three general categories of

dimensions, namely, Relationship, Personal Development, and System Maintenance and System Change dimensions, that it had minimal overlap with existing measuring instruments and that it was economical to use (Rentoul & Fraser, 1983).

Reliability and Validity of the SLEQ

Fraser (1994, p. 504) reported on three samples where the SLEQ had been used that the internal consistency (using Cronbach alpha) ranged from 0.64 to 0.91, indicating satisfactory internal consistency for a scale composed of seven items. The discriminant validity, which is a measure of the mean correlation of a scale with the other seven scales, ranged from 0.17 to 0.38 for the first sample, 0.05 to 0.29 for the second and 0.10 to 0.42 for the third sample. This indicated a satisfactory level of discriminant validity and shows that "the instrument measures distinct although somewhat overlapping aspects of the school environment." (Fisher, Fraser, & Wubbels, 1993, p. 106).

To determine if the SLEQ could differentiate between different schools an analysis of variance was carried out. Fisher and Fraser (1990, p. 12) reported that a one-way ANOVA was performed for each scale, with school membership as the main effect. "It was found that each scale of the SLEQ differentiated significantly between schools ($p<0.001$). The eta^2 statistic (an estimate of the proportion of variance in SLEQ scores attributable to school membership) ranged from 0.16 to 0.40."

Fisher, Fraser, Wubbels, and Brekelmans (1993, p. 4) described the results of a study using the SLEQ, in which a new scale titled Work Pressure was used. They reported that this scale had an internal consistency (alpha reliability) of 0.85. The version of the SLEQ that was used in this study also included the Work Pressure scale, and recognising the recent trend of schools to be involved in strategic planning processes, had a scale titled Mission Consensus. Dorman, Fraser, and McRobbie (1995, p. 335) reported a Cronbach alpha value of 0.84 for the Mission Consensus scale in their study of school environments and science classroom environments, in Australia. In the SLEQ used in this study, there are a total of eight scales (see Table 1 for a full description.

The size of the SLEQ (56 items) is considered to be economical and easy to administer. Each of the eight scales has seven items which are scored on a five point scale: strongly agree, agree, not sure, disagree, strongly disagree. An 'ideal' version of the questionnaire exists also to elicit opinions of staff and principal regarding their desired situation rather than the actual.

Data Source

The questionnaire was sent to 60 schools throughout Australia. In each of the schools the principal and 20 teachers were asked to complete the questionnaires. The staff were chosen randomly and confidentially completed the questionnaires. The final analysis was carried out on responses from 900 questionnaires. Principal was given information about their own schools but not about individual teachers. The schools were chosen to give a variety of different types, single-sex, co-educational, government, non-government, male and female principals, and geographically diverse.

Table 1
Description of the Scales in the SLEQ

Scale Name	Description of scale	Sample Item	Moos's Category
Student Support (SS)*	There is good rapport between teacher and students, students behave in a responsible self-disciplined manner.	There are many disruptive, difficult students in the school.(-)	Relationship
Affiliation (AF)*	Teachers can obtain assistance, advic and encouragement, and are made to feel accepted by their colleagues.	I feel that I could rely on my colleagues for assistance if I should need it.(+)	Relationship
Professional Interest (PI)*	Teachers discuss professional matters, show interest in their work and seek further professional development.	Teachers frequently discuss teaching methods and strategies with each other.(+)	Personal Development
Mission Consensus (MC)**	Consensus exists within the staff about the goals of the school.	Teachers agree on the school's overall goals (+)	System Maintenance and System Change
Empowerment (EM)**	Teachers are empowered and encouraged to be involved in decision making processes.	Decisions about the running of this school ar usually made by the principal or a small group of teachers. (-)	System Maintenance and System Change
Innovation (IN)*	The school is in favour of planned change and experimentation, and fosters classroom openness and individualisation.	Teachers are encouraged to be innovative in this school.(+)	System Maintenance and System Change
Resource Adequacy (RA)*	Support personnel, facilities, finance, equipment and resources are suitable and adequate.	The supply of equipment and resources is inadequate.(-)	System Maintenance and System Change
Work Pressure (WP)*	The extent to which work pressures dominate school environment.	Teachers have to work long hours to keep up with the work load.(+)	System Maintenance and System Change

Note. Items designated (+) are scored by allocating 5, 4, 3, 2, 1 respectively. Items designated (-) are scored in reverse order. Scales designated * are from "Research on Classroom and School Climate" by B. Fraser, 1994, in *Handbook of Research on Science Teaching and Learning*, D. Gabel (Ed), New York: Macmillan, p. 505. Scales designated ** are from "Associations Between School-Level Environment and Science Classroom Environment in Secondary Schools" by J.P. Dorman, B.J. Fraser, and C.J. McRobbie, 1995, *Research in Science Education, 25*, p. 338.

RESULTS

Teachers' Perceptions of Actual School Environment

Table 2 reports the mean score and internal consistency reliability (Cronbach alpha) for each scale of the SLEQ. The eight scales which indicated the teachers' perceptions of the actual school environment showed alpha reliabilities ranging from 0.72 to 0.92 with an average of 0.81, indicating satisfactory levels of internal consistency. Results from previous research (Fisher, Fraser, Wubbels, & Brekelmans, 1993) showed a range of 0.64 to 0.92, while that obtained by Dorman, Fraser, and McRobbie (1995, p. 340) had a range of alpha reliabilities from 0.75 to 0.88.

To test if the SLEQ differentiated between different schools a one-way ANOVA was performed for each scale with the teacher as the unit of analysis and school membership as the main effect. The eta^2 statistic indicates the proportion of variance explained by school membership. It was found that each SLEQ scale differentiated significantly between schools ($p<0.001$) and that the eta^2 statistic ranged from 0.12 to 0.45 for different schools.

Table 2

Statistical Analysis of SLEQ - Teachers' Perceptions of Actual School Environment

Scale	Items	Mean	Std Dev	Alpha Reliability	ANOVA Measurement
Student Support	7	27.65	5.43	0.92	0.45**
Affiliation	7	28.81	3.85	0.86	0.12**
Professional Interest	7	24.45	4.40	0.79	0.25**
Mission Consensus	7	22.96	4.51	0.85	0.23**
Empowerment	7	22.41	4.56	0.72	0.22**
Innovation	7	22.69	4.64	0.80	0.21**
Resource Adequacy	7	24.80	4.78	0.76	0.30**
Work Pressure	7	28.85	4.17	0.80	0.17**

Note. **p<.001
N = 850

The average of all actual school environments resulting from analysis of the teachers' perceptions is shown in linear profile form in Figure 1.

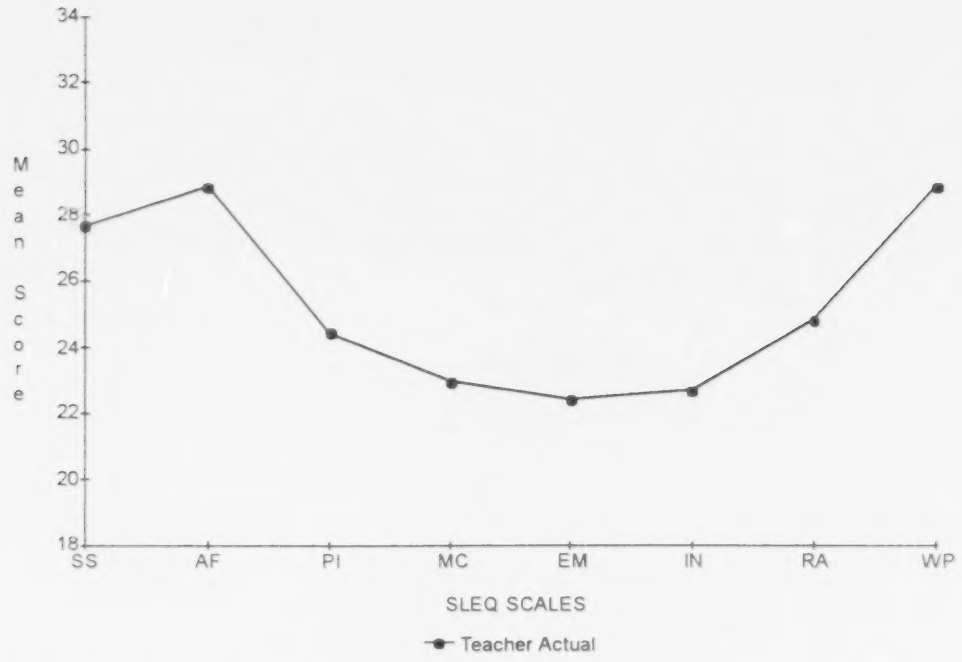

Figure 1. Teachers' perceptions of the actual school environment.

In other recent studies the SLEQ that was used contained some different scales to the scales used in the SLEQ in this study. Templeton and Jensen (1995, p. 97) and Jensen, Shepston, Killmer, and Connor (1996, p. 9) used a version of the SLEQ that had scales called Staff Freedom and Participatory Decision Making, but did not have the Mission Consensus or Empowerment scales. The other scales coincided with the ones used in the study being described in this paper. The version of the SLEQ used by Dorman, Fraser, and McRobbie (1995, p. 340) had seven of the eight scales of the SLEQ used in this study, but did not have the Innovation scale. Table 3 shows a comparison of the mean values of the scales that occurred in three of these recent studies.

It is evident that there are similarities in the results of the three studies. Study 1, undertaken by Templeton and Jensen (1995, p. 94) investigated the perceptions of school environment by 196 teachers who were recipients of the National/State Teacher of the Year award in the USA. Study 2, undertaken by Jensen, Shepston, Killmer, and Connor (1996, p. 9) described the perceptions of school environment by 45 cooperating teachers who were supervising student teachers.

In the Australian study described in this paper, teachers perceived lower mean levels of Professional Interest and Innovation than their counterparts in the U.S.A. At the same time, they perceived a higher level of Work Pressure. The comparisons are shown in the linear profile in Figure 2.

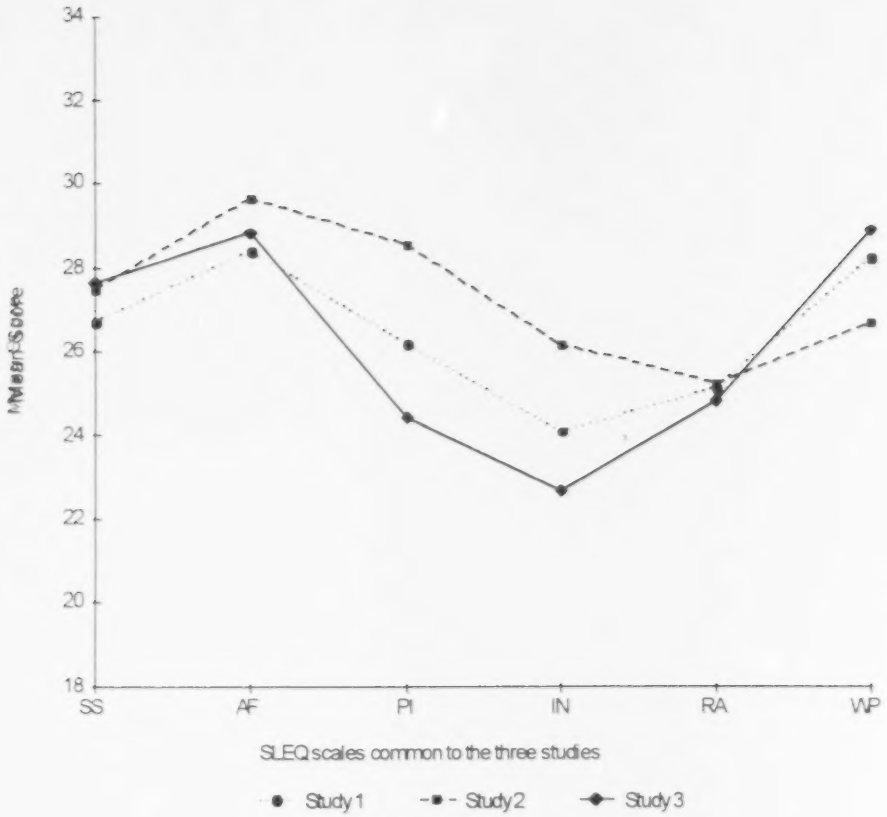

Figure 2. A comparison of teachers' perceptions of actual school environment in three separate studies. Study 1 (Templeton and Jensen, 1993), Study 2 (Jensen, Shepston, Killmer, & Connor, 1996), Study 3 (this paper)

In addition to analysing the separate scales on the questionnaire, the items on the SLEQ were each analysed to see how much they correlated with their designated scales to verify that each item in a scale was measuring a similar dimension to the other items. It was found that all items were related positively to their scales.

The School Level Environment Questionnaire is designed to measure different dimensions of the school environment. An instrument's ability to do this is its discriminant validity and is calculated by determining the mean of the correlations of each scale with the other seven. The range of results of the mean correlations of each scale with the other scales ranged from 0.11 to 0.51. This compared with a result of 0.05 to 0.42 in previous research (Fisher & Fraser, 1991). These results are satisfactory and shows that the SLEQ has sufficient level of discriminant validity and measures distinct, but somewhat overlapping aspects of the school environment.

Teachers' Perception Of An Ideal School Environment

To develop the ideal version of the SLEQ the actual version was reworded to give teachers the opportunity to express their perception of what an ideal school environment would be like.

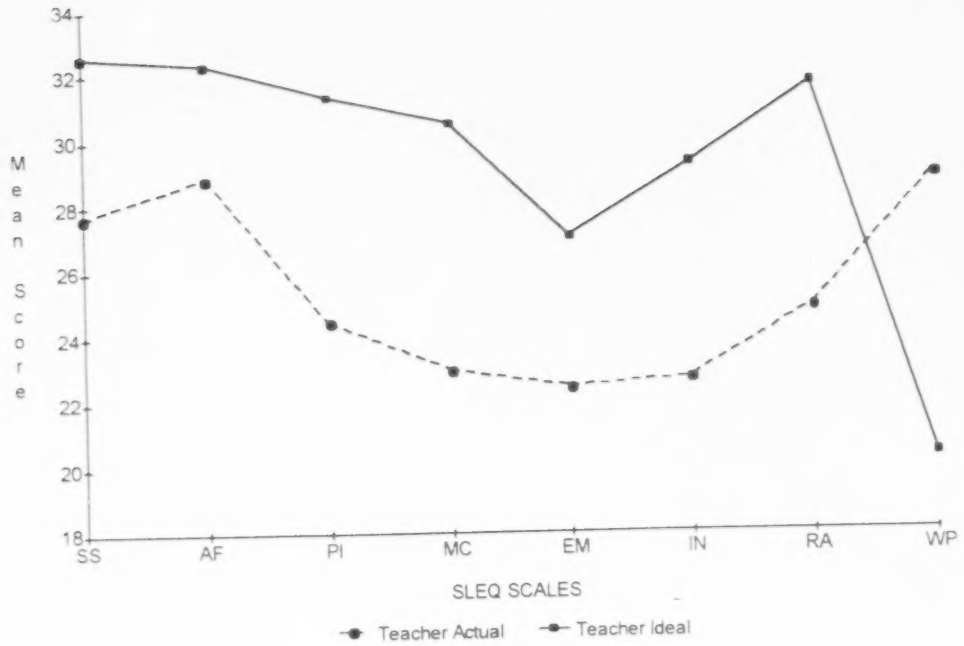

Figure 3. Teachers' perceptions of actual and ideal school environment.

Table 3
Statistical Analysis of SLEQ - Teachers' Perception of an Ideal School Environment

Scale	Items	Mean	Std Dev	Alpha Reliability
Student Support	7	32.55	2.58	0.75
Affiliation	7	32.27	2.71	0.85
Professional Interest	7	31.30	2.77	0.72
Mission Consensus	7	30.49	3.20	0.82
Empowerment	7	27.01	3.50	0.63
Innovation	7	29.23	3.12	0.64
Resource Adequacy	7	31.65	3.07	0.54
Work Pressure	7	20.28	3.51	0.65

N = 850

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In examining the results obtained from the teachers' perceptions of an ideal school environment the alpha reliabilities range from 0.54 to 0.85 compared with the range of 0.72 to 0.92 for the teachers' actual perceptions of their school environments. Some care, therefore, needs to be taken in interpreting the results of those scales with relatively low alpha reliabilities, especially the Resource Adequacy scale, which had the lowest score of 0.54. It will also be observed that the standard deviations calculated in the teachers' perceptions of an ideal school environment are less than the standard deviations calculated in their perceptions of the actual school environment, suggesting less variation across the total sample of teachers in their view of an ideal school environment compared with the variation of their perceptions of their own school environments. In other words, there was a more general agreement among teachers about the aspects of an ideal school environment. The results for the teachers' perceptions of an ideal school environment are shown in linear profile form in Figure 3.

A comparison of the teachers' perceptions of their own school environments with their perceptions of an ideal school environment shows that, generally, they see an ideal school environment as having higher levels of Student Support, Affiliation, Professional Interest, Mission Consensus, Empowerment, Innovation, and Resource Adequacy. They also perceived an ideal school environment as having less Work Pressure.

Table 4

A Comparison of Teachers' Perceptions of Actual and Ideal School Environments

Scale	Mean		
	Actual	Ideal	
Student Support	27.65	32.55	**
Affiliation	28.81	32.27	**
Professional Interest	24.45	31.30	**
Mission Consensus	22.96	30.49	**
Empowerment	22.41	27.01	**
Innovation	22.69	29.23	**
Resource Adequacy	24.80	31.65	**
Work Pressure	28.85	20.28	**

Note. $^{**}p<.01$

$N = 850$

The greatest difference observed between the teachers' actual and ideal perceptions of school environment is in the area of Work Pressure. The next largest difference was in the area of Mission Consensus. There has been a trend in recent years for schools to develop goals and objectives and to express these in a Mission Statement. It may be that a large number of the schools in the sample had not been through that process, or that the teaching staff did not share

the goals that had been stated. Analysis of these results showed that there were significant differences between actual and ideal perceptions for all scales on the SLEQ. These comparisons are shown in Table 4.

An indication of the discriminant validity of the ideal version of the SLEQ was obtained by determining the mean of the correlations of each scale with the other scales. The range of results was 0.16 to 0.69. This compared with a result of 0.11 to 0.51 for the actual version of the SLEQ. The slightly higher correlation figures for the ideal version may be a result of the fact that the teachers, in their perception of an ideal school environment, would score more positively in all dimensions (except Work Pressure). The scales would all have higher values and, therefore, be correlated more positively compared with measurements of the teachers' actual perceptions of their own school environment. These results suggest that caution must be employed when interpreting discriminant validity results from the ideal version of the SLEQ.

Principals' Perceptions of Actual School Environment

The principals of the schools that took part in the study were also asked to complete the questionnaire on school environment and the data received were analysed in the same way as the data from the teachers

Table 5

Statistical Analysis of SLEQ - Principals' Perceptions of Actual School Environment

Scale	Items	Mean	Std Dev	Alpha Reliability
Student Support	7	29.76	3.88	0.83
Affiliation	7	29.31	3.03	0.72
Professional Interest	7	26.25	4.19	0.81
Mission Consensus	7	25.82	4.21	0.88
Empowerment	7	25.92	3.48	0.58
Innovation	7	25.33	3.53	0.74
Resource Adequacy	7	26.94	3.86	0.73
Work Pressure	7	27.96	3.49	0.71

N = 50

The results from the analysis of the data on the principals' perceptions of the school environment is shown in Table 5. The internal consistency (Cronbach alpha reliability coefficients) range from 0.58 to 0.88. The relatively low figure for the Empowerment scale probably stems from some confusion that could have arisen because the questionnaire was

written to assess the *teachers'* perception of empowerment in the school environment, not the *principals'*. This questionnaire was not written specifically for principals.

Principals' Perceptions of an Ideal School Environment

The principals who took part in the study were also asked for their perceptions of an ideal school environment. This information was sought to determine if the principals had similar perceptions to the teachers. The results are shown in Table 6.

Table 6
Statistical Analysis of SLEQ - Principals' Perceptions of an Ideal School Environment

Scale	Items	Mean	Std Dev	Alpha Reliability
Student Support	7	32.96	2.08	0.53
Affiliation	7	32.73	2.34	0.71
Professional Interest	7	32.38	2.31	0.59
Mission Consensus	7	32.35	2.55	0.82
Empowerment	7	27.56	4.09	0.74
Innovation	7	29.77	3.02	0.47
Resource Adequacy	7	32.21	3.38	0.73
Work Pressure	7	23.10	3.69	0.67

In examining the results obtained from the principals' perceptions of an ideal school environment the alpha reliabilities range from 0.47 to 0.82 compared with the range of 0.58 to 0.88 in the results obtained from the principals' actual perception of their school environments. The results for the Student Support scale and the Innovation scale are a little low compared with the other scales and some caution may be needed when interpreting these scales in the ideal version of the SLEQ. However, it should be acknowledged that the sample size is much smaller. It will also be observed that the standard deviations are less, suggesting less variation across the total sample of principals in their view of an ideal school environment compared with the variation of their perceptions of their own school environments.

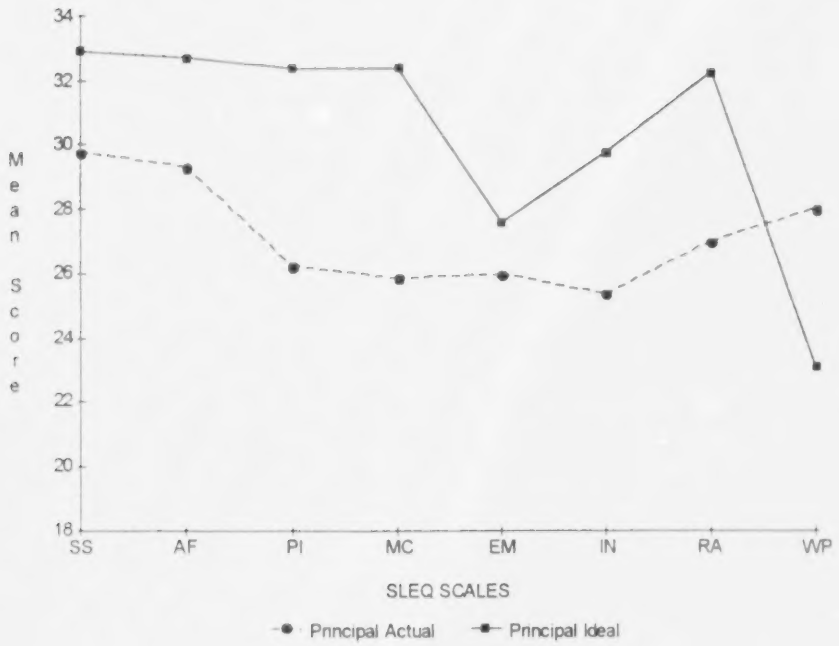

Figure 4. Principals' actual and ideal perceptions of school environment.

An examination of the principals' perceptions of actual and ideal school environments shows fewer differences than the comparison of teachers' perceptions. Analysis of the results, however, show that there are significant differences on seven of the eight scales. The scale that did not show a significant difference was the Empowerment scale. This could be a result, again, of the slight confusion about whether the questionnaire was seeking a view of the perception of the principals' level of empowerment or the teachers' - it was, in fact, looking at empowerment from the teachers' point of view.

The biggest difference observed between the principals' perceptions of actual and ideal school environments is in the area of Work Pressure. This was also the scale that showed the biggest difference on the teachers' questionnaires. Analysis of these results showed that there were significant differences between actual and ideal perceptions for all scales on the SLEQ, except the Empowerment scale. The comparison between principals' perceptions of actual and ideal school environments is shown in Figure 4.

The range of results of the mean correlations of each scale with the other scales ranged from 0.21 to 0.66. These results are slightly higher than the results from the principals' actual perceptions of school environment. This increase in correlations was also observed in the teachers' perceptions of an ideal school environment. These results are generally satisfactory and show that the ideal version of the SLEQ measures somewhat distinct, but overlapping aspects of the school environment. The higher figures suggest that caution is needed in interpreting and extrapolating the results.

A Comparison of Teachers' and Principals' Perceptions of School Environment

The results for each of the scales on the SLEQ for teachers and principals were compared, for both the actual and ideal versions of the questionnaire are depicted in Table 7 and Figure 5, which show that there are significant differences on six of the eight scales. The principals scored higher on all scales except the Work Pressure scale where they perceived less work pressure than did the teachers. This could be explained by the teachers, being much closer to the students and the pressures of a strictly timetabled schedule, report-writing, assessments and immediate classroom discipline, probably seeing themselves as having a greater amount of day-to-day pressure placed on them.

There was a significant difference between the teachers' and principals' perception of Mission Consensus. The principals perceived a higher degree of this. The principal is extremely important in determining where the school is heading and what its purpose is - that is, its mission. The principal, therefore, could be expected to have a better grasp of the school's mission. That the teachers perceive a lesser degree of Mission Consensus, may be a result of a lack of communication of these ideas from the principal to the teachers.

Table 7

A Comparison of Principals' and Teachers' Perceptions of Actual School Environments

Scale	Mean - Actual		
	Teachers	Principals	
Student Support	27.65	29.76	**
Affiliation	28.81	29.31	
Professional Interest	24.45	26.25	**
Mission Consensus	22.96	25.82	**
Empowerment	22.41	25.92	**
Innovation	22.69	25.33	**
Resource Adequacy	24.80	26.94	**
Work Pressure	28.85	27.96	

Note. $^{**}p<.01$

The principals also perceived a greater amount of Resource Adequacy at the schools. This could be a result of principals having a broader picture of the school, considering buildings and grounds to be the most important resources, whereas teachers would, more likely, be concerned with resources, such as text books, photocopiers, chalk and white-board pens. The principal also may not have a clear picture of each teacher's access to the resources that have been supplied.

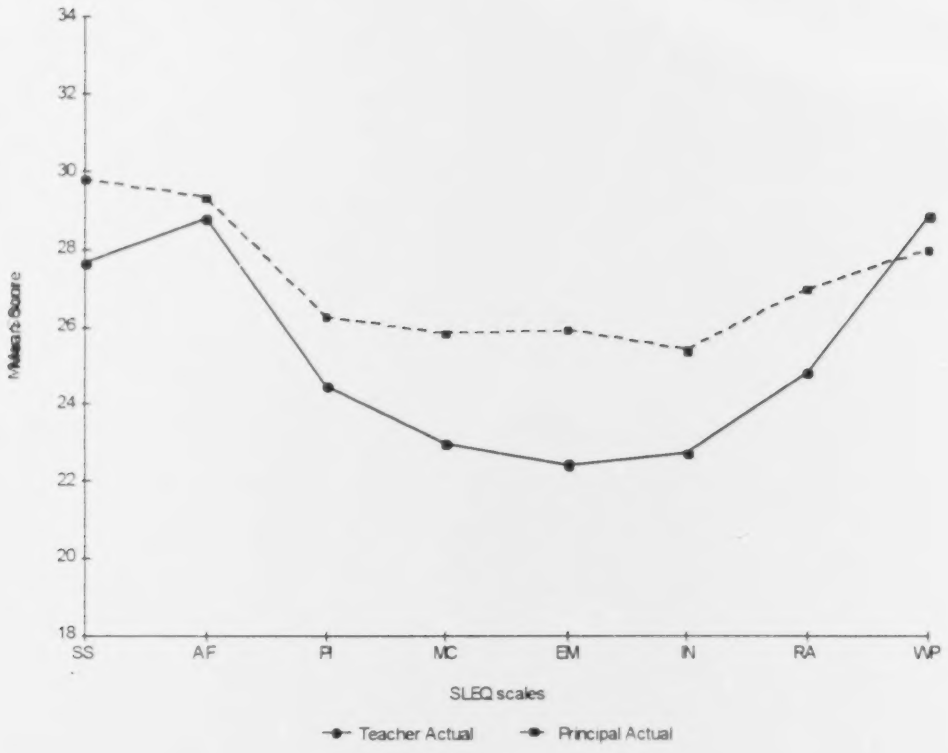

Figure 5. A comparison of principals' and teachers' actual perceptions of school environment.

In their perception of an ideal school environment, there is a remarkable amount of agreement between teachers and principals. Figure 6 shows that there is a high degree of congruence between the two sets of results, perhaps indicating that the teachers and principals are aiming for the same goals in terms of school environment. It also could be a result of the fact that the principals, themselves, were and still are, teachers and therefore share the same educational goals as their staff members.

The teachers perceived that in an ideal school environment there would be significantly less Work Pressure than the principals perceived there would be.

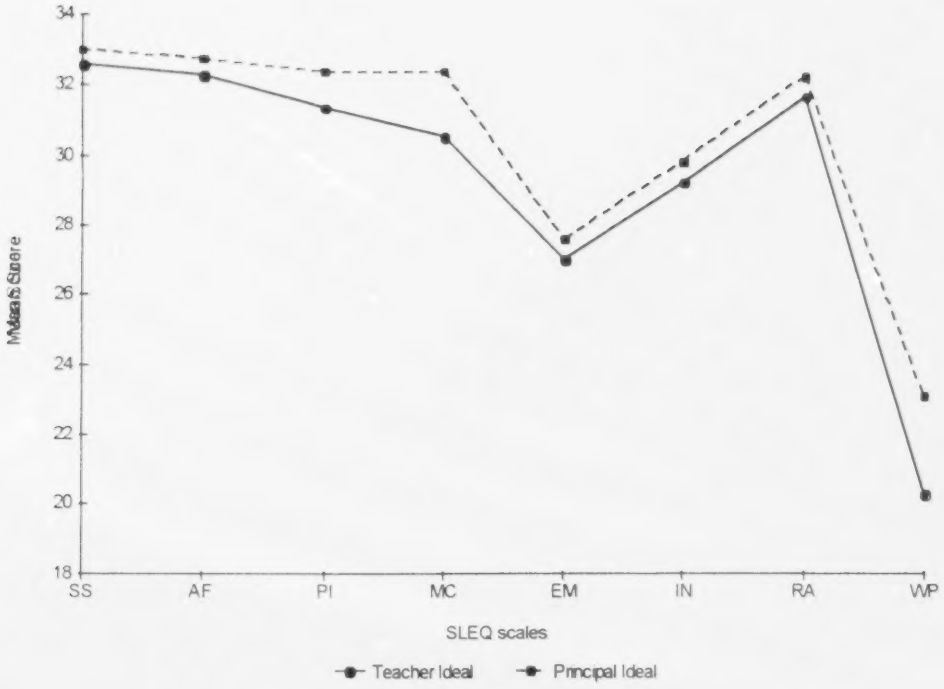

Figure 6. Principals' and teachers' perceptions of an ideal school environment.

CONCLUSION

This paper has provided a detailed analysis of the data obtained from the use of the SLEQ with 850 teachers and 50 principals throughout Australia. The data showed that the SLEQ is a reliable and valid instrument to measure perceptions of school environment. Analysis of responses to the SLEQ revealed that each scale had acceptable internal consistency, with all scales having a Cronbach alpha reading of greater that 0.72. By performing a one-way ANOVA for each scale with school membership as the main effect, it was found that each SLEQ scale differentiated significantly ($p<0.001$) between schools, attesting to its reliability and ability to differentiate between schools.

The perceptions of the teachers of their actual school environments were similar to those of other recent studies of school environment using the SLEQ. It was found that the teachers in this sample scored slightly lower on their perceptions of Professional Interest and Innovation and slightly higher on their perception of Work Pressure.

When asked for their perceptions of an ideal school environment, the teachers would have preferred significantly higher levels on all scales of the SLEQ except for the Work Pressure scale where the reverse was true.

When comparing the principals' perceptions of their actual school environments with their perceptions of ideal school environments, the principals also showed a preference for school environments higher on seven of the eight scales but again with less Work Pressure.

A comparison of teachers' and principals' actual perceptions of school environments showed that there were significant differences in the way that both groups viewed the school environments. Generally, principals scored higher on seven of the scales and lower on their

perception of Work Pressure. Teachers and principals, however, had a much more congruent view of an ideal school environment, where there were significant differences noted in only two of the eight scales of the SLEQ. The fact that this did not always translate into a similar congruence in individual schools, provided principals with valuable information about the teachers' perceptions of their school environments at their schools. Each principal who took part in the study received information about her/his own school and about the average perceptions of school environment of all the principals and teachers in the sample. The information that individual schools obtained from this study could be the foundation for a program of school improvement and so provides a distinctive contribution to this line of learning environment research.

REFERENCES

Anderson, G.J., & Walberg, H.J. (1974). Learning environments. In H.J. Walberg (Ed.), *Evaluating educational performance* (pp. 81-98). Berkeley, CA: McCutchan.

Cresswell, J.C., & Fisher, D.L. (1996, April). *Relationships between principals' interpersonal behaviour with teachers' and school environment*. Paper presented at the Annual Meeting of the American Educational Research Association, New York.

Docker, J., Fisher, D.L., & Fraser, B.J. (1989). Differences in the psychosocial work environment of different types of schools. *Journal of Research in Childhood Education, 4*, 5-17.

Dorman, J.P., Fraser, B.J., & McRobbie, C.J. (1995). Associations between school-level environment and science classroom environment in secondary schools. *Research in Science Education, 25*, 333-351.

Fisher, D.L., & Fraser, B.J. (1983). Use of WES to assess science teachers' perceptions of school environment. *European Journal of Science Education*, 5, 231-233.

Fisher, D.L., & Fraser, B.J. (1990, April). *Validity and use of the School-Level Environment Questionnaire*, Paper presented at the Annual Meeting of the American Educational Research Association, Boston.

Fisher, D.L., Fraser, B.J., & Wubbels, T. (1993). Interpersonal teacher behaviour and school environment. In T. Wubbels & J. Levy (Eds.), *Do you know what you look like: Interpersonal relationships in education* (pp. 103-112). United Kingdom: The Falmer Press.

Fisher, D.L., Fraser, B.J., Wubbels, T., & Brekelmans, M. (1993, April). *Associations between school learning environment and teacher interpersonal behaviour in the classroom*. Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta.

Fraser, B.J. (1986). *Classroom environment*. United Kingdom: Croome-Helm.

Fraser, B.J. (1994). Research on classroom and school climate. In Gabel, D. (Ed.), *Handbook of research on science teaching and learning* (pp. 493-541). New York: Macmillan.

Fraser, B.J., Docker, J.D., & Fisher, D.L. (1987). A comparison of the psychosocial environments of different types of school. In B.J. Fraser (Ed.), *The study of learning environments: Volume 3* (pp. 68-75). Perth, WA: Curtin University of Technology.

Fraser, B.J., Docker, J.D., & Fisher, D.L. (1988). Assessing and improving school climate. *Evaluation and research in Education, 2*, 109-122.

Fraser, B.J., & Tobin, K.G. (1991). Combining qualitative and quantitative methods. In B.J. Fraser & H.J. Walberg (Eds.), *Educational environments: Evaluation, antecendents and consequences* (pp.271-292). Oxford: Pergamon.

Halpin, A.W., & Croft, D.B. (1963). *Organisational climate of schools*. Chicago IL: Midwest Administration Centre, University of Chicago.

Jensen, R.A., Shepston, T.J., Killmer, N., & Connor, K. (1996). Student teacher and cooperating teachers assessments of actual and preferred learning environments: a comparative analysis. In D.L. Fisher (Ed.), *The study of learning environments Volume 8* (pp. 1-12). Perth: Curtin University of Technology.

Lewin, K. (1936). *Principles of topological psychology*. New York: McGraw-Hill.

Moos, R.H. (1973). Conceptualisations of human environments. *American Psychologist, 28*, 652-665.

Moos, R.H. (1979a). *Evaluating educational environments*. San Francisco: Jossey-Bass.

Moos, R.H. (1979b). Educational climates. In Walberg, H.J. (Ed.), *Educational Environments and effects: evaluation, policy and productivity (*pp 79-100). Berkeley CA: McCutchan.

Moos, R.H. (1981). *Manual for Work Environment Scale*. Palo Alto, CA: Consulting Psychologists Press.

Murray, H.A. (1938). *Explorations in personality*. United Kingdom: Oxford University Press.

Rentoul, A.J., & Fraser, B.J. (1983). Development of a school-level environment questionnaire. *Journal of Educational Administration, 21*(1), 21-39.

Templeton, R.A., & Jensen, R.A. How exemplary teachers perceive their environments. In D.L Fisher (Ed.), *The study of learning environments: Volume 7* (pp. 94-105). Perth: Curtin University of Technology.

Walberg, H.J. (1979). Introduction and overview. In H.J. Walberg (Ed.), *Educational environments and effects: Evaluation, policy and productivity (*pp 1-11). Berkeley CA: McCutchan.